

WHAT IS CLAIMED IS:

1. A method for managing a plurality of printing devices connected on a network, said method
5 comprising the steps of:
 detecting a printing device connected on the network;
 requesting information from the detected printing device;
10 receiving the requested information from the printing device; and
 creating a print queue for the printing device based on the received information.
- 15 2. A method according to Claim 1, wherein the printing device is detected by detecting an address assignment message sent between an address server and the printing device over the network.
- 20 3. A method according to Claim 2, wherein the address assignment message is a DHCP message.
4. A method according to Claim 2, wherein the address assignment message contains an IP address
25 and a MAC address corresponding to the printing device.
5. A method according to Claim 1, wherein the printing device is detected by sending a request message to each of a plurality of network addresses and
30 receiving a response message from the printing device located at one of the plurality of network addresses.
6. A method according to Claim 5, wherein the plurality of network addresses comprises a
35 numerical range of IP addresses.

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plurality of printing devices having a corresponding
print queue entry in the print queue configuration

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print queue in response to detecting a new IP address of the printing device, so that the print queue is based on the new IP address; and

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        detecting new identification information of a
print queue corresponding to one of the plurality of
5  printing devices having a corresponding print queue
entry in the print queue configuration database;
        updating the identification information in
the print queue entry corresponding to the print queue
in response to detecting the new identification
10 information; and
        updating a connection between a network
workstation and the print queue with the new
identification information.

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22. A method according to Claim 20, wherein
20 the identification information includes a server that
manages the print queue.

24. A method according to Claim 1, further comprising the step of creating a queue service web page which provides a user interface to a workstation on the network for print queue management.

25. A method according to Claim 24, wherein
the user interface provides a process for manual
35 creation of a print queue.

26. A method according to Claim 24, wherein the process for manual creation of a print queue comprises the steps of:

receiving a user selection from the user
5 interface designating a printing device on the network;
obtaining information about the printing device in response to receiving the user selection; and
creating a print queue, in response to a command input into the user interface, corresponding to
10 the printing device based on the obtained information.

27. A method according to Claim 25, wherein the user interface provides a function for managing print jobs contained in a designated print queue.

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28. A method according to Claim 1, further comprising the steps of:

continuously polling printing devices connected to the network;
20 determining if a configuration of the printing devices has changed; and
updating the print queue corresponding to a printing device whose configuration has been determined to have changed.

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29. A network management device for managing a plurality of printing devices on a network, said network management device comprising:

a program memory for storing process steps
30 executable to perform a method comprising the steps of
(a) detecting a printing device connected on the network, (b) requesting information from the detected printing device, (c) receiving the requested information from the printing device, and (d) creating
35 a print queue for the printing device based on the received information; and

a processor for executing the process steps stored in said program memory.

30. A network management device according to
5 Claim 29, wherein the printing device is detected by detecting an address assignment message sent between an address server and the printing device over the network.

10 31. A network management device according to Claim 30, wherein the address assignment message is a DHCP message.

32. A network management device according to
15 Claim 30, wherein the address assignment message contains an IP address and a MAC address corresponding to the printing device.

33. A network management device according to
20 Claim 29, wherein the printing device is detected by sending a request message to each of a plurality of network addresses and receiving a response message from the printing device located at one of the plurality of network addresses.

25 34. A network management device according to Claim 33, wherein the plurality of network addresses comprises a numerical range of IP addresses.

30 35. A network management device according to Claim 33, wherein the plurality of network addresses comprises a plurality of IP address contained within a routing table.

35 36. A network management device according to Claim 29, wherein the printing device is detected by broadcasting a request message over the network and

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44. A network management device according to Claim 42, the method further comprising the step of creating a print queue web page containing a plurality of links representing each of the print queue entries
5 in the print queue configuration database.

45. A network management device according to Claim 44, the method further comprising the step of receiving from a workstation on the network a selection
10 of one of the plurality of links on the print queue web page, and in response to the selection, configuring the workstation to print to the print queue represented by the link.

46. A network management device according to Claim 45, wherein configuring the workstation to print to the print queue comprises transferring a print driver corresponding to the print queue to the
15 workstation.

47. A network management device according to Claim 42, the method further comprising the steps of:
detecting a new IP address of one of the plurality of printing devices having a corresponding
25 print queue entry in the print queue configuration database;

updating a configuration of the corresponding print queue in response to detecting a new IP address of the printing device, so that the print queue is
30 based on the new IP address; and

updating an IP address in the print queue entry corresponding to the print queue in response to detecting a new IP address.

48. A network management device according to Claim 42, the method further comprising the steps of:

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5 updating the identification information in
the print queue entry corresponding to the print queue
in response to detecting the new identification
information; and

49. A network management device according to
Claim 48, wherein the identification information
15 includes a print queue name.

51. A network management device according to Claim 29, wherein a print queue is not created for the printing device if it is determined that a number of existing print queues is larger than a predetermined number.

53. A network management device according to
Claim 52, wherein the user interface provides a process
35 for manual creation of a print queue.

receiving the requested information from the
printing device; and

creating a print queue for the printing
device based on the received information.

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58. Computer-executable process steps
according to Claim 57, wherein the printing device is
detected by detecting an address assignment message
sent between an address server and the printing device
10 over the network.

59. Computer-executable process steps
according to Claim 58, wherein the address assignment
message is a DHCP message.

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60. Computer-executable process steps
according to Claim 58, wherein the address assignment
message contains an IP address and a MAC address
corresponding to the printing device.

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61. Computer-executable process steps
according to Claim 57, wherein the printing device is
detected by sending a request message to each of a
plurality of network addresses and receiving a response
25 message from the printing device located at one of the
plurality of network addresses.

62. Computer-executable process steps
according to Claim 61, wherein the plurality of network
30 addresses comprises a numerical range of IP addresses.

63. Computer-executable process steps
according to Claim 61, wherein the plurality of network
addresses comprises a plurality of IP address contained
35 within a routing table.

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print queue in response to detecting a new IP address
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of the printing device, so that the print queue is based on the new IP address; and

updating an IP address in the print queue entry corresponding to the print queue in response to
5 detecting a new IP address.

76. Computer-executable process steps according to Claim 70, the method further comprising the steps of:

10 detecting new identification information of a print queue corresponding to one of the plurality of printing devices having a corresponding print queue entry in the print queue configuration database;

updating the identification information in
15 the print queue entry corresponding to the print queue in response to detecting the new identification information; and

updating a connection between a network workstation and the print queue with the new
20 identification information.

77. Computer-executable process steps according to Claim 76, wherein the identification information includes a print queue name.

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78. Computer-executable process steps according to Claim 76, wherein the identification information includes a server that manages the print queue.

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79. Computer-executable process steps according to Claim 57, wherein a print queue is not created for the printing device if it is determined that a number of existing print queues is larger than a
35 predetermined number.

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80. Computer-executable process steps according to Claim 57, the method further comprising the step of creating a queue service web page which provides a user interface to a workstation on the network for print queue management.

81. Computer-executable process steps according to Claim 80, wherein the user interface provides a process for manual creation of a print queue.

82. Computer-executable process steps according to Claim 80, wherein the process for manual creation of a print queue comprises the steps of:

receiving a user selection from the user interface designating a printing device on the network; obtaining information about the printing device in response to receiving the user selection; and creating a print queue, in response to a command input into the user interface, corresponding to the printing device based on the obtained information.

83. Computer-executable process steps according to Claim 81, wherein the user interface provides a function for managing print jobs contained in a designated print queue.

84. Computer-executable process steps according to Claim 57, the method further comprising the steps of:

continuously polling printing devices connected to the network;

determining if a configuration of the printing devices has changed; and

updating the print queue corresponding to a printing device whose configuration has been determined to have changed.

85. A computer-readable medium which stores computer-executable process steps, the computer-executable process steps to manage a plurality of printing devices on a network, said computer-executable process steps comprising process steps executable to perform a method comprising the steps of:
- detecting a printing device connected on the network;
 - requesting information from the detected printing device;
 - receiving the requested information from the printing device; and
 - creating a print queue for the printing device based on the received information.
86. A computer-readable medium according to Claim 85, wherein the printing device is detected by detecting an address assignment message sent between an address server and the printing device over the network.
87. A computer-readable medium according to Claim 86, wherein the address assignment message is a DHCP message.
88. A computer-readable medium according to Claim 86, wherein the address assignment message contains an IP address and a MAC address corresponding to the printing device.
89. A computer-readable medium according to Claim 85, wherein the printing device is detected by sending a request message to each of a plurality of network addresses and receiving a response message from the printing device located at one of the plurality of network addresses.

90. A computer-readable medium according to Claim 89, wherein the plurality of network addresses comprises a numerical range of IP addresses.

5 91. A computer-readable medium according to
Claim 89, wherein the plurality of network addresses
comprises a plurality of IP address contained within a
routing table.

10 92. A computer-readable medium according to
Claim 85, wherein the printing device is detected by
broadcasting a request message over the network and
receiving a response message from the printing device
connected on the network.

15 93. A computer-readable medium according to
Claim 85, where the information is requested by sending
an SNMP message to the detected printing device.

20 94. A computer-readable medium according to
Claim 85, wherein the received information comprises a
type of printing device corresponding to the type of
the detected printing device.

25 95. A computer-readable medium according to
Claim 94, wherein the received information further
comprises printing capabilities of the detected
printing device.

30 96. A computer-readable medium according to
Claim 85, the method further comprising the step of
publishing the print queue to the network.

97. A computer-readable medium according to
35 Claim 96, wherein the print queue is published to the
network according to a set of predetermined rules.


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print queue entry in the print queue configuration
database;
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updating a configuration of the corresponding
print queue in response to detecting a new IP address
5 of the printing device, so that the print queue is
based on the new IP address; and

updating an IP address in the print queue entry corresponding to the print queue in response to detecting a new IP address.

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104. A computer-readable medium according to Claim 98, the method further comprising the steps of:

detecting new identification information of a
print queue corresponding to one of the plurality of
15 printing devices having a corresponding print queue
entry in the print queue configuration database;

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        updating the identification information in
        the print queue entry corresponding to the print queue
        in response to detecting the new identification
20  information; and

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updating a connection between a network workstation and the print queue with the new identification information.

25 105. A computer-readable medium according to
Claim 104, wherein the identification information
includes a print queue name.

106. A computer-readable medium according to
30 Claim 104, wherein the identification information
includes a server that manages the print queue.

107. A computer-readable medium according to Claim 85, wherein a print queue is not created for the printing device if it is determined that a number of existing print queues is larger than a predetermined number.

